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AF/ 1754

CERTIFICATE OF MAILING BY "EXPRESS MAIL" (37 CFR 1.10) Applicant(s): Donald R. Huffman, et al.	Docket No. 7913ZAZY

135

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit
08/236,933	May 2, 1994	Stuart L. Hendrickson	23389	1754

Invention: **NEW FORM OF CARBON**

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CERTIFICATE OF MAILING BY "EXPRESS MAIL" (37 CFR 1.10) Applicant(s): **Donald R. Huffman, et al.**			Docket No. **7913ZAZY**	
Application No. **08/236,933**	Filing Date **May 2, 1994**	Examiner **Stuart L. Hendrickson**	Customer No. **23389**	Group Art Unit **1754**

Invention: **NEW FORM OF CARBON**

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PATENT & TRADEMARK OFFICE

TRANSMITTAL LETTER (General - Patent Pending)	Docket No. **7913ZAZY**

In Re Application Of: **Donald R. Huffman, et al.**

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
08/236,933	**May 2, 1994**	**Stuart L. Hendrickson**	**23389**	**1754**	**4115**

Title:

NEW FORM OF CARBON

COMMISSIONER FOR PATENTS:

Transmitted herewith is:

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TC 1700

LETTER (in triplicate)
REQUEST FOR REHEARING (in triplicate)
DECLARATION OF RAOUF O. LOUTFY (in triplicate)
EXHIBITS 1 AND 2 (in triplicate)

in the above identified application.

☒ No additional fee is required.

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☒ The Director is hereby authorized to charge and credit Deposit Account No. **19-3886/RCT** as described below.

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Mark J. Cohen

Signature

Dated: **May 31, 2005**

Mark J. Cohen
Registration No. 32,211
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellants:	Donald R. Huffman, et al.	**Examiner:**	Stuart L. Hendrickson
Serial No.:	08/236,933	**Art Unit:**	1754
Filed:	May 2, 1994	**Docket:**	7913ZAZY
For:	NEW FORM OF CARBON	**Dated:**	May 31, 2005

Confirmation No.: 4115

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

LETTER

Appellants respectfully request consideration of the Declaration of Dr. Loutfy which is being filed concurrently with the Request for Rehearing. Although it was generated after the termination of the Briefing period during the Appeal of this application, it is relevant to the issues presented herein and of record in the other copending, applications, viz., in U.S. Serial No. 08/236,933 (7913ZAZY), U.S. Serial No. 07/580,246 (7913Z) and U.S. Serial No. 08/471,890 (7913ZY). These same issues regarding descriptive support and enablement of "macroscopic amounts" of fullerenes, e.g., C_{60}, C_{70}, have been raised by the United States Patent and Trademark Office. Both the '933 and '246 are on Appeal, while the '890 application is still in prosecution. Nevertheless, these same issues have been raised in these copending applications and the evidence presented herein as well as the Loutfy Declaration are of record in the other copending applications, including the two applications on Appeal. Since the Board will be considering the Loutfy Declaration as it relates to the issue of descriptive support and enablement in the copending applications on Appeal, in the interest of expediency, Appellants respectfully request consideration of the Loutfy Declaration at this time when reviewing Appellants' Request for a Rehearing.

Appellants respectfully request an Oral Hearing on this issue.

Respectfully submitted,

Mark J. Cohen

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
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Appellants:	Donald R. Huffman, et al.	**Examiner:**	Stuart L. Hendrickson
Serial No.:	08/236,933	**Art Unit:**	1754
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REQUEST FOR REHEARING

Appellants, through their attorney, respectfully request reconsideration of the Decision On Appeal dated March 30, 2005 ("Decision"), by the Board of Patent Appeals and Interferences ("Board") with respect to Claims 45-49, 51-82, 96, 203 and 232. Appellants also respectfully request clarification of the status of Claims 45-49, 51-82, 84, 96, 181, 203-221 and 223-248 with respect to the rejection thereof under 35 U.S.C. §112, second paragraph, by the Examiner in the Final Action.

I. INTRODUCTION

The Board in its Decision has maintained the rejection under 35 U.S.C. §112, first paragraph, of Claims 45-49, 51-82, 96, 203 and 232, for allegedly lacking descriptive support in the underlying application for the term "macroscopic". According to the Decision, the Board held that the underlying specification does not provide descriptive support for preparing macroscopic amounts of C_{60} using the claimed process. Decision, p17. Moreover, the Board has maintained the rejection of Claims 45-49, 51-82, 96, 203 and 232, under 35 U.S.C. §112, first paragraph, for allegedly failing to enable one of ordinary skill in the art how to make macroscopic amounts of C_{60} using the claimed process.

Appellants respectfully request that the Board reconsider its decision regarding the issue of descriptive support and enablement with respect to the term "macroscopic amounts", for the reasons provided herein.

II. THERE IS ADEQUATE DESCRIPTIVE SUPPORT FOR THE TERM "MACROSCOPIC AMOUNTS FULLERENES, E.G., C_{60}, IN THE UNDERLYING SPECIFICATION IN COMPLIANCE WITH 35 U.S.C. §112, FIRST PARAGRAPH.

Appellants agree with the legal standard set forth in the Decision regarding the written description requirement of 35 U.S.C. §112, first paragraph. As indicated therein, the test for determining compliance with the written description requirement of 35 U.S.C. §112, first paragraph, is whether the disclosure of the application, as originally filed, reasonably conveys to one of ordinary skill in the art that the inventor had possession of the later claimed subject matter. Vas Cath Inc. v. Mahurkar, 935 F2d., 1555, 1563-64, 19 USPQ 2d 1111, 1117 (Fed Cir. 1991). Appellants, however, respectfully disagree with the Board as to the application of the law to the facts.

Appellants also agree with the Board as to the meaning of the term "macroscopic amounts". By use of the term "macroscopic amounts", it is meant that the fullerene, e.g., C_{60}, is present in amounts sufficient to be seen with the naked eye without the aid of a microscope.

It is respectfully submitted, however, that in its Decision, the Board overlooked evidence in the instant application that conveyed to one of ordinary skill in the art that, at the time of filing, the inventors had possession of a process for making macroscopic amounts of fullerenes, e.g., C_{60}. In addition, it is respectfully submitted that the Board did not realize the significance of forming a colored benzene solution when fullerenes were dissolved therein and overlooked the evidence of record that one of ordinary skill in the art correlated the colored solution with macroscopic amounts. Finally, it is respectfully submitted that the Board overlooked Kroto's testimony that indicated that the production of colored powder from the teachings of Example 1 of the instant specification indicates to one of ordinary skill in the art that macroscopic amounts of fullerenes, e.g., C_{60}, were produced.

Contrary to the holding by the Board, the application reasonably conveyed to one of ordinary skill in the art that the inventors had possession, at the time of the filing of the instant

application, of macroscopic amount of fullerenes, e.g., C_{60}, as evidenced by reviewing the instant application.

A review of the application on Page 1 and Page 2 clearly shows that the application was comparing the amounts of fullerenes, e.g., C_{60} and C_{70}, prepared by the instant process to that which was prepared in the closest prior art reference, a paper by Kroto, et al. in Nature 1985, 318, 162, 14 (hereinafter referred to as the "Nature 1985 article"), of record. This article describes the experiment in which a solid disk of graphite was vaporized into a high density helium flow using a focused pulsed laser. The resulting vaporized carbon was expanded in a supersonic molecule beam and photoionized using an excimer laser, thereby forming molecular ions. The molecular ions, and not the molecules themselves, were detected by time of flight mass spectroscopy. Based on the results, Kroto, et al. speculated that they identified C_{60} and/or C_{70}; however, so little was obtained that Kroto, et al. could not perform any tests to verify the same. In fact, years later Curl and Smalley, (two of the authors of the aforesaid Nature 1985 article) in Scientific American 1991, 54-63, of record (hereinafter "Curl, et al."), reflected upon the events leading to the isolation of macroscopic amounts of fullerenes, and commented that Kroto, et al. only collected minute amounts of material, which provided indirect evidence of the existence of fullerenes and which was not enough to see, smell, touch, etc.

> Although our evidence was sound and our conclusions were supported by extensive further experiments and theoretical calculations, we could not collect more than a few tens of thousand of these special new molecules. This amount was plenty to detect and probe with the sophisticated techniques available in our laboratory, but there was not enough to see, touch or smell. Our evidence was indirect, much as it is for physicists who study antimatter. For now, the fullerenes existed only as fleeting signals detected in our exotic machines. But as chemists, we knew that the new material ought to be perfectly stable. Unlike antimatter, the geodesic forms of carbon should be quite safe to hold in one's bare hand. All we had to do was make more of them-billions and billions more.

Id. at 54.

The Appellants realized that Kroto, et al. had only made minute amounts of C_{60}, C_{70} and the like. The instant application describes that the publication in the Nature 1985 article only postulated the existence of C_{60}, as it indicates, on Page 1, lines 14-31 of the instant specification:

> ... all that was observed was a peak in the mass spectra of said carbon vapor. However, Kroto, et al. did not isolate any of said compound... Yet, to date, no one has been successful in verifying the existence of this molecule since no one has been successful in isolating the molecule in measurable amounts. Thus, no process for producing recoverable amounts of this new compound have been described at the present time. (Emphasis added)

Id.

On Page 2, lines 7-14, the specification describes C_{70} and it states at lines 10-13 thereof:

> ...Like the (C_{60}) to date, no one has been successful in verifying the existence of C_{70}. Heretofore, no one has been successful in obtaining the molecule in any appreciable amounts. (Emphasis added)

Id, pg. 2, lines 6-14.

In the SUMMARY OF THE INVENTION the application further states:

> A process has now been developed for the production of recoverable amounts of C_{60} and C_{70}.... The processes of the present invention produces C_{60} and C_{70} in recoverable amounts and permits realization of the proposed uses described hereinabove. (Emphasis added)

Page 2, lines 16 to 34 of the instant specification.

These proposed uses were the uses proposed in the publication by Kroto, et al. in the Nature 1985 article, in which the authors state the following:

> ...If a large scale synthetic route to the C_{60} species can be found, the chemical and practical value of the substance may prove extremely high. One can readily conceive of C_{60} derivatives of many kinds, such as C_{60} transition metal compounds, be a super lubricant... If stable in macroscopic, condensed phases, this C_{60} species would provide a topologically novel aromatic nucleus for new branches of organic and inorganic chemistry. Finally, this especially stable and symmetrical carbon structure provides a possible catalyst and/or intermediate to be considered in modelling prebiotic chemistry... (Emphasis added)

Nature 1985, p. 14.

A review of Page 2 of the instant specification indicates that these were among the utilities listed in the present application for the new form of carbon, e.g., C_{60} and C_{70}.

Taken together, these passages clearly connote to one of ordinary skill in the art that the present inventors have found a means of producing C_{60} or C_{70}, or both, in amounts that have not

been realized heretofore. The amounts referenced to were significantly larger than that produced by Kroto, et al. in the Nature 1985 article. By referring to the utilities listed in the Nature 1985 article, and stating that the invention produces sufficient C_{60} and C_{70} to permit the realization of these utilities, which can only be achieved, as indicated by Kroto, et al., if a large scale synthetic route for C_{60} can be found, such as if present in macroscopic amounts, it is evident that the amounts referred to in the application through the use of such terms as "appreciable amounts", "measurable amounts" and "recoverable amounts" connote amounts present sufficient to be seen. In fact, as indicated in the Brief, "appreciable" by definition, means "enough to be perceived." See Webster Unbridged Dictionary 2nd Ed. p.91 (1983), previously submitted. Appreciable, when given its broad definition, is consistent with the term "macroscopic". Moreover, "recoverable amounts," and "measurable amounts" when put into this context, also connote large scale amounts, e.g., macroscopic amounts. Thus, put into proper context, the passage on Pages 1 and 2 of the instant specification reasonably conveys to the skilled artisan that the Appellants had produced fullerenes, e.g., C_{60} and C_{70}, in macroscopic amounts.

Moreover, the instant application contains additional evidence that the fullerenes, e.g., C_{60} and C_{70}, were produced in macroscopic amounts. As the instant application describes on Page 6, lines 11 to Page 7, line 12, when the sooty carbon product, prepared by the vaporization of graphite in accordance with the procedure described therein was placed in benzene, it turned brownish-red. Further, attention is directed to Example 1 on Page 16 of the instant specification, wherein it specifically exemplifies the preparation of the sooty carbon product in accordance with the present invention and the extraction thereof with benzene to produce a wine-red to brown color. The fact that the benzene solution was colored is significant. In the Brief, Appellants indicated that this indicated to one of ordinary skill in the art that macroscopic amounts, e.g., C_{60}, were present therein. The Board, however, questioned whether this amount was sufficient to connote macroscopic amounts to one of ordinary skill in the art.

Again, the answer is in the affirmative. As evidence thereof, reference is again directed to Curl, et al. which described that since the publication of the 1985 Nature article, scientists from all over the world were trying to make fullerenes, e.g., C_{60} and C_{70}, in macroscopic amounts. As stated therein:

> Thus, for five years, we had been searching for a method of producing visible amounts of the stuff. We called our efforts "the

> search for the yellow vial" because quantum calculations for such a soccerball-shaped carbon molecule suggested it would absorb light strongly only in the far violet part of the spectrum…
>
> In our laboratory we collected the sooty carbon produced by the vaporization laser while using various chemical techniques to detect the presence of C_{60}. We slurried the soot in benzene, for example, and looked for a yellow color. But the solution in our test tubes stayed clear, with boring black soot sitting on the bottom.
>
> …When the Krastchmer-Huffman group finally added benzene to their camel sample and saw the color red develop, they realized they were looking at the first concentrated solution of fullerenes ever seen. They evaporated the solvent and found that tiny crystals remained, which readily redissolved. The crystals could be sublimed under a vacuum near 400 degrees Celsius and condensed on a cold microscope slide to form smooth films of solid materials, which Kratschmer and Huffman christened "fullerite"…
>
> In thin layers, these films were yellow (a fact that those of us at Rice University who searched for a yellow vial found highly gratifying). (Emphasis added)

Id, at Pages 55 and 57.

Thus, a competitor of the present inventors had correlated the colored solution of benzene containing the fullerenes, e.g., the C_{60}, product with "visible amounts", i.e., macroscopic amounts of same. Moreover, inasmuch as the benzene solution was colored, it meant to one of ordinary skill in the art that macroscopic amounts of fullerenes e.g., C_{60} were present in the colored benzene solution described in the instant application.

The Board, in its Decision, dismissed these arguments, stating that the issue is not what is in the benzene solution. See Decision, Page 9. However, the issue was not only what was in the benzene solution by also how much. Since the benzene solution containing, e.g., C_{60}, was colored, it meant that fullerenes were present in macroscopic amounts and were available for extraction in macroscopic amounts therefrom, thereby conveying to one of ordinary skilled in the art that the inventors had possession of a process of making macroscopic amounts of fullerenes, e.g. C_{60} or C_{70}.

Additional evidence that the instant application readily conveys to one of ordinary skill in the art that the Appellants were in possession of macroscopic amounts of fullerenes, is found on Page 4 thereof:

> ...In the production of C_{60} and C_{70}, any procedure for vaporizing carbon can be used, although the preferred method relies on the sue of a high intensity electrical current with graphite rods as electrodes. These rods are constructed to permit vaporization of carbon at the tip of the rod to produce a high density vapor of carbon.

The high density of carbon vapor produced by the vaporization of graphite facilitated the formation of fullerenes, e.g., C_{60}, in macroscopic amounts. As evidence thereof, attention is directed to the Loutfy Declaration filed concurrently herewith, Paragraph 15:

> ...Even though it appears simple to the uninformed, especially in hindsight, the process of Dr. Kratschmer and Huffman as described in the subject application, is a remarkable discovery, which produced a high density of vapor of carbon as described on Page 4 of the subject application which resulted in the formation of macroscopic amounts of fullerenes by their method. From 1985, when Dr. Smalley, et al. at Rice University discovered the existence of C_{60} and C_{70} atoms by spectrographic analysis of a vapor (see paragraph 12 above), until Dr. Huffman, et al. published their discovery in 1990 no one else realized how to produce and recover macroscopic quantities of these fullerenes, despite the availability of equipment that could have been used for this purpose.

Paragraph 15 of Loutfy Declaration:

The formation of the high density of carbon vapor was lacking in the previous methods reported in the literature. One of ordinary skill reading the specification at the time of the filing of the application understood that by forming a high density of carbon vapor, the Applicants were able to produce macroscopic amounts of fullerenes, e.g., C_{60}, by their method. Thus, this passage is further evidence that the application as originally filed reasonably conveyed to one of ordinary skill in the art that the inventors had possession of a process for making macroscopic amounts of fullerenes, e.g., C_{60}.

There are other indices in the instant application that evidence to one of ordinary skill in the art that the instant application describes the process of making macroscopic amounts of fullerenes, e.g., C_{60}.

For example, the instant application on Page 7, lines 24-25, describes that the product produced by sublimation of the carbon soot is obtained as a brown to gray coating and the color is brown to gray, depending on the thickness of the coating. In other words, the color

differentiated between the amount of fullerene that was present on the sublimation collecting surface. This fact is also consistent with macroscopic amounts of product, e.g., C_{60}, being formed. One of ordinary skill in the art can observe differences in color with the naked eye and utilize this difference in color to determine relative amounts of fullerene, e.g., C_{60}, product formed. One need not resort to the use of a microscope, as alleged by the Decision.

In addition, the application describes on Page 7, lines 19-22 that the product obtained from extraction is a dark brown to black crystalline material. The fact that the one sees colors and utilizes the color to differentiate between the different products indicates to one of ordinary skill in the art that the product was produced in amounts that can be seen with the human eye, as color is something that the human eye can perceive and differentiate.

In addition, attention is directed to Example 1 of the instant specification wherein it is specified that the C_{60} product is obtained as a powder and wherein the color of the product produced therefrom is indicated. Obviously, the isolation of a product as a powder taken together with the fact that it is a colored powder connotes that the product could be seen with the naked eye, consistent with the use of the term "macroscopic amounts", as recited in the claims. As shown hereinbelow, Dr. Kroto testifies that this fact evidences that the instant application reasonably conveys to one of ordinary skill in the art that the inventors had possession of a process of making macroscopic amounts of fullerenes, e.g., C_{60}.

As further evidence that the instant application reasonably conveys to one of ordinary skill in the art that the inventors had possession of macroscopic amounts of fullerenes at the time of filing, of the application, attention is directed to the Declaration of Dr. Kroto, a Nobel Prize laureate, of record. Dr. Kroto agreed that the instant application reasonably conveyed to one of ordinary skill in the art that the inventors were in possession of macroscopic amounts of fullerenes, e.g., C_{60}, at the time of filing the application. See, for example, Paragraph 3 of the Declaration of Kroto dated July 27, 1995 wherein he attests that "[s]pecifically, the application described the production of C_{60} and C_{70} in macroscopic amounts, i.e., amounts that could be seen with the naked eye." See also Paragraph 3 of the Declaration of Kroto dated June 9, 1995. Attention is further directed to the Kroto Declaration dated June 9, 1995, at Paragraphs 14 and 15, in which he attests that the application adequately describes the method for making macroscopic amounts of fullerenes, such as C_{60} and C_{70}, and that based upon the teachings in the

application, it is his opinion that the inventors had in their possession at the time of the filing of the application macroscopic amounts of same. Furthermore, Dr. Kroto refers to the fact that the colored powder formed in Example 1 connotes macroscopic amounts of fullerenes as discussed hereinabove. More specifically, attention is directed to Paragraph 15 of Dr. Kroto's Declaration dated November 16, 1999, wherein he states:

> Moreover, the specification provides evidence in several instances that the inventors had produced the fullerene products, including C_{60}, in macroscopic amounts. For example, attention is directed to Example 1, which describes the product thereof in powder form as brownish-red. Such language connotes, in my opinion, that the product thereof could be seen with the naked eye. Moreover, based upon repetition of the process described therein, as described hereinbelow, the process as described in the above-identified application, especially in Example 1, inherently produces fullerenes, e.g., C_{60}, in amounts that could be seen with the naked eye...

As further evidence, Kroto testified in the Kroto Declaration dated November 16, 1999, in Paragraph 15 that by following the procedure described in the above-identified application, he had invariably produced fullerenes, e.g., C_{60} in macroscopic amounts. As Kroto testifies in Paragraph 15 of the Declaration:

> ...Moreover, based upon repetition of the process described therein, as described hereinbelow, the process as described in the above-identified application, especially in Example 1, inherently produces fullerenes, e.g., C_{60}, in amounts that could be seen with the naked eye.

Dr. Kroto further testifies in Paragraphs 17, 18 and 19 of the Declaration dated November 16, 1999, as follows:

> 17. Utilizing the procedure exactly as described in the above-identified application, I have had fullerenes, including C_{60}, prepared in macroscopic amounts on numerous occasions since 1990 to the present. More specifically, by following the procedure described in the above-identified application and vaporizing graphite rods in an atmosphere of helium, forming the carbon soot therefrom, collecting the soot and dissolving the soot in benzene, in accordance with the procedure described in the above-identified application, I and my colleagues have prepared and identified various

fullerenes, including, inter alia, C_{60}...

18. Moreover, by following the procedure described in the above-identified application, and in accordance with the procedure outlined in Paragraph 17 herein, we have isolated fullerenes in macroscopic amounts, as defined herein. For example, utilizing the procedure outlined in Paragraph 17, I have found that the smoky carbon product contains 5 to 10% C_{60} and 1% C_{70}. We routinely produce the soot in 1-5 gram quantities and routinely extract 100-500 milligram amounts batchwise. Thus, one kilogram of sooty carbon product produces, on average, 100g of C_{60}, 10g of C_{70} and 1 gram of other fullerenes, such as those indicated hereinabove. The various fullerenes formed can and are isolated in accordance with the isolation and purification procedures described in the above-identified application, without an undue amount of experimentation. Furthermore, the various fullerenes are isolated as solids, which are easily visible to the naked eye. For example, in a typical experiment conducted according to the procedure described in the above-identified application, C_{60} is formed in about 100 mg quantities, C_{70} in about 10 mg quantities and the remainder in about 1 mg quantities.

19. Thus, by following the procedure described in the above-identified application, I have found that the process described therein inherently produces ... C_{60}, in macroscopic amounts. In fact, by following the procedure of Kratschmer and Huffman, outlined in the above identified application, crystalline material of fullerenes, including C_{60}, is produced which can be seen with the naked eye. (Emphasis added.)

As further evidence thereof, attention is directed to the Declaration of Raouf Loutfy, another expert, whose Declaration is attached hereto (hereinafter "Loutfy Declaration"). In his Declaration, Dr. Loutfy testified that by following the teachings in the instant application, macroscopic amounts of fullerenes, e.g., C_{60} and C_{70} were provided:

11. Although the subject patent application of Dr. Kratschmer and Huffman does not expressly use the term "macroscopic amounts" to describe the amounts of fullerenes, e.g., C_{60} and C_{70} first isolated by them, in accordance with the teaching of the process described therein, the fullerenes, e.g., C_{60} and C_{70}, that were prepared in accordance with the process described herein,

> were produced in measurable amounts that were visible to them, and it is my professional opinion that these amounts are inherently amounts definable by the term "macroscopic amounts".

Paragraph 11 of the Loutfy Declaration.

As testified by Dr. Loutfy, he repeated exactly the procedure described in the underlying application utilizing graphite rods of one quarter inches in diameter, as described in the instant specification, as for example, on Page 6, line 32 to Page 7, line 1 of the instant specification. Dr. Loutfy testified that he vaporized the graphite, in accordance with the teachings in the application. By following the procedure described therein, he produced macroscopic amounts of fullerenes, e.g., C_{60} and C_{70} (See Paragraph 17 of Loutfy Declaration):

> 17. I repeated exactly the Huffman et al. process according to the teaching described in the subject application including example 1 using ¼ inch in diameter graphite rod, at 100 torr Helium, using 100 ampere dc current. This graphite vaporized, and the vapor was condensed on a water cooled surface. The vaporization was performed for 50 minutes using about 17 cm length of the graphite rod and produced 12 gram of soot. The fullerenes were recovered using toluene and the amount of fullerene was determined. The yield of fullerene was about 8 to 10%. Accordingly, the total recoverable fullerenes was over 1.2 <u>grams with over 900 mg of C_{60} and over 200 mg of C_{70} and the remaining other fullerenes</u>...(Emphasis added)

Loutfy Declaration, Paragraph 17

Based upon the teachings in the instant application, Dr. Loutfy calculated the amount of C_{60} and C_{70} produced by the inventors in Example 1, and concluded that the amount produced was, without question in macroscopic amounts. See Paragraphs 17 and 18 of Loutfy Declaration:

> ...<u>According to the teaching in the subject application where they vaporized a ¼" graphite rod with 1 cm length, the inventor must have produced at least about 600 mg of soot that contains admixture of at least 63 mg of fullerenes that contain at least about 50 mg of C_{60} and at least about 10 mg of C_{70}.</u> A 600 mg quantity of soot certainly can be seen by the naked eye, as also indicated by the inventor that "heavy block coating on collecting substrates and/or on the walls of the chamber which can be easily scraped off for the recovery step." <u>Also, the 60 mg of fullerene certainly can be seen by the naked eye and it is measurable.</u>

> Furthermore, the 45 and 10 mg of C_{60} and C_{70} respectively are also measurable, in today modern laboratory facility amount as low as 0.1 mg can be measured, and can be seen by the naked eye.
>
> The same conclusion can be reached by simply calculating the mass of the rod vaporized in Kratschmer et al. subject application, including example 1, which is easily determined from the diameter of the graphite rod they used (1/4"), the length (1 cm), and typical density of the type of graphite used for graphite vaporization (2.0 g/cc). This calculation estimates that about 633 mg of soot containing fullerenes was produced by Kratschmer et al., which is certainly macroscopic and in agreement with the above-presented experimental data.
>
> Moreover, if a longer graphite rod were used, the amount of C_{60}, C_{70} and other fullerenes produced would even be greater, as shown herein above. (Emphasis added).

Loutfy Declaration Paragraphs 17 and 18.

Thus, as indicated by Dr. Loutfy, macroscopic amounts of, e.g., C_{60} were produced in Example 1 of the instant application. As further testified by Dr. Loutfy at Paragraph 18:

> It is my opinion that the inventors of this subject application were the first to isolate and recover a measurable or macroscopic amount of fullerenes, and to teach others to do so. Their description in the application is clearly understood by ordinary skilled artisans, and when repeated by us allowed us to produce visible, measurable commercial quantities of fullerene product, commonly described as "macroscopic quantities".

Loutfy Declaration Paragraph 18.

The Board, however, rejects arguments that the application describes a process for making macroscopic amounts of fullerenes. For example, the Board refers to the description in the specification relating to the information obtained under the microscope, the spectral data of a 2 micrometer thick coating of product on silicon that was utilized for taking the IR, the 0.1 micrometer thick coating on quartz used for taking UV, the X-ray diffraction data, and such descriptions in the application as the C_{60} having microcrystalline structure, and concludes that the application does not describe macroscopic amounts. However, the fact that samples were taken for measurements on such small quantities or that the crystals were described as microcrystalline does not necessarily imply that the process of the present invention produces macroscopic amounts of fullerenes, e.g., C_{60}. As one skilled in the art is well aware, only minute amounts of

material are required to obtain the spectra, but this fact, nevertheless, does not preclude the possibility that macroscopic amounts of material could have been produced by the method described in the present application. Lower concentrations of material were used in the IR and UV, for example, because the peak absorbances thereof are concentration dependent; if the sample is too concentrated, the peak (bands) may become so intense that it could not be recorded on the page. As shown in Figures 2 and 3 of both the IR and UV, the abosorbance peaks filled the entire page. Furthermore, although an X-ray diffraction pattern gives important information about the product, the amount of material required is very small. This again does not necessarily mean that macroscopic amounts of fullerenes, e.g., C_{60} could not have been prepared. Furthermore, information about the product under the microscope was provided since it gave more details about the fullerene product then could be observed alone with the naked eye.

Of course, the issue is what does the teachings of the specification reasonably convey to one of ordinary skill in the art. Based upon the review of the application and the testimony of Dr. Kroto (and Dr. Loutfy) it is apparent, that to one of ordinary skill in the art, the application reasonably conveys that fullerenes, e.g., C_{60} were produced in macroscopic amounts by the process of the present application.

However, in its commentary, especially with respect to the fact that a colored powder was produced, even though the Board ignored the testimony of Dr. Kroto which indicated that the formation of a colored powder conveys to one of ordinary skill in the art that macroscopic amounts of fullerenes were produced by the process, the Board indicated, that "it is just as likely the color of the powder was observed with the aid of a microscope as it is that the color of the powder was observed with the naked eye…" Page 14 of the Decision. By stating that it is "likely as not….", the Board is indicating that it cannot meet its burden. The United States Patent and Trademark Office cannot show that it is more likely than not that the application does not reasonably convey at the time of filing to one of ordinary skill in the art that the inventors were in possession of a process of making macroscopic amounts of fullerenes, e.g., C_{60}. In fact, based on the evidence indicated hereinabove, it is respectfully submitted that the application reasonably conveys to one of ordinary skill in the art that the inventors were in possession of a process of making macroscopic amounts of fullerenes, e.g., C_{60}, at the time of the filing of the instant application.

Furthermore, the Board summarily dismissed the inherency argument. Dr. Kroto testified that this process inherently produces fullerenes, e.g., C_{60} in macroscopic amounts. See Paragraph 19 of Kroto Declaration dated November 16, 1999. Dr. Kroto testified that by following the procedure described in the application, he inherently produced macroscopic amounts. In other words, Dr. Kroto testified that C_{60} is inherently produced in macroscopic amounts if one of ordinary skill in the art follows the teachings in the above-identified application for producing same.

Case law has held that words describing a function or property that was inherent in the specification is considered to be supported by the disclosure and supports the adequate written requirement, in accordance with 35 U.S.C. §112, first paragraph. See, <u>In re Reynolds</u>, 443 F.2d 384, 170 USPQ 94 (CCPA 1971). In <u>Reynolds,</u> the question was whether words describing a function that was inherent in the claimed product could be added to the specification by amendment, or whether such description was "new matter". The court cited with approval the holding in <u>Technicon Instruments Corp. v. Coleman Instrument, Inc.</u>, 255 F.Supp. 630, 640-641, 150 USPQ 227, 236 (N.D. Ill. 1966), <u>aff'd</u>, 385 F.2d 391, 155 USPQ 369 (7th Cir. 1967), that: "By disclosing in a patent application a device that inherently performs a function, operates according to a theory, or has an advantage, a patent applicant necessarily discloses that function, theory, or advantage even though he says nothing concerning it." <u>In re Reynolds,</u> 433 F.2d at 389, 170 USPQ at 98. It was concluded that the express description of the inherent property, since not "new matter", could be added to the specification with effect as of the original filing date. <u>Id</u>.

Therefore, the disclosure in an application of an inherent property satisfies the written description requirement with respect to that property. <u>Id.</u>, <u>see also,</u> <u>Kennecott Corp. v. Kyocera International Inc.</u>, 835 F.2d 1419, 1422, 5 USPQ2d 1194, 1197 (Fed. Cir. 1987), <u>cert. denied,</u> 486 U.S. 1008 (1988).

This case is not only is relevant but instructive. As indicated hereinabove, Dr. Kroto's testimony indicates that the process described in the underlying application inherently produces C_{60} in <u>macroscopic amounts</u>. In accordance with the holding of <u>Reynolds</u>, the inherent production of C_{60} in macroscopic amounts provides adequate support for the term "macroscopic" to be used in the claims.

Moreover, it should also be noted that, based on the process described in the present application, the present inventors have received accolades for the production of fullerenes, e.g., C_{60} in macroscopic amounts. In fact, the scientific community has recognized that the process of Huffman and Kratschmer, et al., which is exemplified in the article by Kratschmer, et al., Nature, 1990, 354, and the present specification produces fullerenes, e.g., C_{60} or C_{70}, in macroscopic amounts. A review of the latter article clearly reveals that the description of the preparation of fullerenes, e.g. C_{60} is, at most, just as detailed as the instant specification for making C_{60}. Attention is directed to Column 1, lines 58-61 of U.S. Patent No. 6,077, 401, which is attached as Exhibit 2 to the Loutfy Declaration. The '401 patent indicates that Huffman and Kratschmer were the first to isolate macroscopic amounts of C_{60}. In addition, attention is directed to the article by Curl, et al. in which the authors admit that Huffman and Kratschmer were the first to isolate fullerenes, e.g., C_{60} and C_{70}, in macroscopic amounts. See Curl, et al. pg. 55.

The Swedish Academy in their press release awarding the Nobel Prize to Kroto, and Smalley and Curl, of record, also acknowledged Huffman and Kratschmer for being the first to make macroscopic amounts of fullerenes.

Therefore, for the reasons provided herein, it is respectfully requested that the Board reconsider its decision with respect to its holding that there is inadequate descriptive support for the term "macroscopic amounts" and that it reverse the Examiner's rejection of Claims 45-49, 51-82, 203 and 232 under 35 U.S.C. §112, first paragraph, for lack of descriptive support.

III. CONTRARY TO THE HOLDING BY THE BOARD, THE UNDERLYING SPECIFICATION ENABLES ONE OF ORDINARY SKILL IN THE ART TO MAKE MACROSCOPIC AMOUNTS OF C_{60} WITHOUT AN UNDUE AMOUNT OF EXPERIMENTATION.

In its Decision, the Board upheld the rejection of Claims 45-49, 51-82, 96, 203 and 232 under 35 U.S.C. §112, first paragraph, holding that the subject application did not enable one of ordinary skill in the art to make C_{60} and/or C_{70} in macroscopic amounts. Decision, Page 22.

Case law holds that to be enabling under section 112, first paragraph, the patent must contain a description sufficient to enable one skilled in the art how to make and use the claimed invention. Raytheon Co. v. Roper Corp., 724 F.2d 951, 960, 220 USPQ 592, 599 (Fed. Cir. 1983), cert. denied, 469 U.S. 835 (1984). A patent may be enabling even though some

experimentation is necessary; the amount of experimentation however, must not be unduly extensive. Atlas Powder Co. v. E.I. du Pont de Nemours & Co., 750 F.2d 1569, 1576, 224 USPQ 409, 413 (Fed. Cir. 1984).

The Board, in its decision does not question whether the specification enables one to make C_{60}. It is apparent in the Decision that the Board acknowledges that the specification is enabling to make C_{60}. The issue is whether the specification is enabling for making fullerene, e.g., C_{60}, in macroscopic amounts.

Appellants respectfully submit that the Board did not consider fully Kroto's Declaration in which he testifies that by following the procedure the instant application he was able to make macroscopic amounts of fullerenes, e.g., C_{60}, without undue experimentation.

It is apparent that the United States Patent and Trademark Office is basing its rejection of non-enablement on its incorrect belief that the application does not have descriptive support of C_{60} in macroscopic amounts. See Decision, Page 19.

Case law has held that the enablement requirement is separate and distinct from the description requirement under 35 U.S.C. §112, first paragraph. Vas Cath, Inc. v. Mahurker, 935 F2d 1555, 1563-1564, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991). It is in error for the United States Patent and Trademark Office to reject the claims for lack of enablement on its incorrect belief that the instant application does not have descriptive support for "macroscopic amounts" of fullerenes. An application can be enabling even if it does not contain any descriptive support. However, as indicated hereinabove, the application describes a process for making macroscopic amounts of fullerenes, e.g., C_{60}, in view of the evidence of record, described in the previous section.

Contrary to the allegations of the Office Action, the specification fully complies with the enablement requirement of 35 U.S.C. §112, first paragraph, and adequately teaches one skilled in the art how to make the claimed invention without undue experimentation. As indicated in the previous section, the specification provides on Pages 3-7 thereof the general teaching to the skilled artisan of how to prepare, inter alia, C_{60} in macroscopic amounts. Further, specific examples are provided in the application which evidence that macroscopic amounts of fullerenes, e.g., C_{60}, are prepared in accordance with the process described in the instant application.

Attention is directed to Example 1 which describes, in great detail, the process of producing C_{60} in macroscopic amounts.

Based on the evidence in the record, Appellants submit that if the skilled artisan follows the procedures described in the specification, including the specific examples, macroscopic amounts of C_{60} are produced in the absence of undue experimentation. The Board, however, found that the disclosure is not enabling.

A means of determining, whether the teachings in the application are enabling for one of ordinary skill in the art to make macroscopic amounts of fullerenes, C_{60} or C_{70}, without undue experimentation is to have someone repeat the process described in the instant application. If macroscopic amounts of product are prepared by repeating the process without undue experimentation, then the only conclusion that can be drawn is that the teachings in the underlying application are enabling for making fullerenes, e.g., C_{60} in macroscopic amounts.

Attention is again directed to the Declaration of Dr. Kroto, dated June 9, 1995, Paragraph 3 wherein Dr. Kroto testifies that the

> "...application teaches in clear detail to the skilled artisan the preparation of fullerenes, including C_{60}, in quantities that were never recognizably achieved before the discovery of Huffman and Kratschmer described in the application. Specifically, the application describes methods for the production of C_{60} and C_{70} in macroscopic amounts, i.e., amounts that could be seen with the naked eye (inherently at least 10^{18} molecules of product).

Moreover, in Paragraph 15 of the same Declaration, Dr. Kroto testifies:

> 15. In my professional judgment the above-identified application adequately teaches to the skilled artisan how to make macroscopic amounts of the fullerenes, including C_{60} and C_{70}.

Attention is also directed to the Supplemental Declaration of Dr. Kroto, dated November 16, 1999, Paragraphs 8 and 15-19, wherein Dr. Kroto testifies that the application adequately describes how to make fullerenes, including C_{60}, in macroscopic amounts and wherein he testifies that in accordance with these teachings, he has himself made macroscopic amounts of C_{60} without an undue amount of experimentation. See Paragraphs 18 and 19 in particular:

> 18. Moreover, by following the procedure described in the above-identified application...we have isolated fullerenes in macroscopic amounts. For example, ... we have found that the smoky carbon product contains 5 to 10% C_{60} and 1% C_{70}. We routinely produce the soot in 1-5 gram quantities and routinely extract 100-500 milligram amounts batchwise. Thus, one kilogram of sooty carbon product produces, on average, 100 g of C_{60}...Various fullerenes formed can and are isolated in accordance with the isolation and purification procedures described in the above-identified application, without an undue amount of experimentation.
>
> 19. Thus, by following the procedure described in the above-identified application. I have found that the process described therein inherently produces several species of fullerenes, including C_{60}, in macroscopic amounts... In fact, by following the procedure of Kratschmer and Huffman, outlined in the above-identified application, crystalline material of fullerenes including C_{60}, is produced which can be seen with the naked eye. (Emphasis added)

Dr. Kroto thus testifies that the procedure described in the underlying application is so sufficiently detailed that he was able to make, inter alia, C_{60} in macroscopic amounts. Moreover, the fact that Dr. Kroto characterized the procedure as routine indicates that it is performed without an undue amount of experimentation.

The fact that Dr. Kroto could make C_{60} in macroscopic amounts by following the teachings in the instant application without undue experimentation is unequivocal evidence that the application contains an enabling description of how to make fullerenes in macroscopic amounts without an undue amount of experimentation.

The Board does not accept this testimony on two grounds. First, it alleges that Dr. Kroto does not state whether undue experimentation was required to produce the sooty carbon product from which the C_{60}, e.g., was isolated and purified. Decision, on Page 21. Contrary to the allegations of the Board, the Declaration of Dr. Kroto does indicate that the process disclosed in the underlying application is enabling for making macroscopic amounts of fullerenes, e.g., C_{60}. Again, it is noted that Dr. Kroto indicates in his declaration that by following the procedure described in the instant specification, he routinely produces the soot in 1-5 gram quantities and extracts 100-500 milligram amounts of C_{60}. Based on the use of the words "routinely", it is evident that the vaporization of carbon to produce the sooty carbon product, in accordance with

the procedure described in the underlying specification, was performed in the absence of an undue amount of experimentation. Dr. Kroto did not indicate that any deviation from the disclosed procedure was necessary. In fact, by reading the entirety of Paragraphs 17 and 18 of the November 16, 1999, Declaration, it is clear that Dr. Kroto, when referring to the isolation and purification of procedures described in the underlying application, was referring to the entire process, as a whole taught in the underlying application for making C_{60} in macroscopic amounts.

In fact, attention is also respectfully directed to Paragraph 22 of the Supplemental Declaration dated November 16, 1999, wherein Dr. Kroto states that the teachings in the present specification provide sufficient information for the skilled artisan to generally make macroscopic amounts of fullerenes including C_{60}, without an undue amount of experimentation.

Moreover, as further support that the teachings in the present application is enabling for the preparation of C_{60} in macroscopic amounts, attention is directed to the article by Kratschmer, et al. in Nature 347, pp. 354-358 (1990), which is attached as Exhibit 3 to the Kroto Declaration dated November 16, 1999. A review of the article clearly reveals that the description of the preparation of the fullerenes, including C_{60}, is at most, just as detailed as the instant specification for making C_{60} in macroscopic amounts. Yet, as testified by Dr. Kroto, this description of the present process enabled various scientists to produce macroscopic quantities of fullerenes, including C_{60}. As Kroto testifies in Paragraph 22 of the November 16, 1999 Declaration:

> 22. It is interesting to note there are over 3,390 publications referring to their Nature article. Only a handful of papers in some fifty years of science receive this number of citations. It is apparent that the Nature article has been cited an innumerable number of times because various scientists have followed the procedures described therein to successfully produce macroscopic quantities of fullerenes, including C_{60}. The fact that several thousand publications reference the Nature article for preparing fullerenes adds further support that the procedure described in the Nature article and thus the present specification provides sufficient information for the skilled artisan to generally make macroscopic amounts of fullerene, including C_{60}, without an undue amount of experimentation. Moreover, it is also attributable to the due recognition by the scientific community of Kratschmer's and Huffman's claim to have originated this method of production.

The second issue raised by the Board is that Dr. Kroto's November 16, 1999, Declaration is not persuasive because the acts were performed after the effective filing date of the instant application. See Decision on Page 21. Appellants agree with the Board that enablement is determined as of the effective filing date of the application. According to the Board, developments occurring after the effective filing date are of no significance regarding what one skill in the art believed as of the filing date, citing In re Wright, 999 F2d 1557, 1562-63, 27 USPQ2d 1510, 1514 (Fed Cir 1998).

Appellants respectfully submit that this aspect of the Wright holding is not applicable in the present circumstance. In Wright, the inventors had continued performing experiments and had made further developments after the effective filing date of the underlying application. In the present case, the testimony was presented by a third party, and not the inventors themselves. Further, the testimony did not relate to improvements of the invention, but to determine whether the application was enabling at the time of the filing of the specification for making macroscopic amounts. The testimony of Dr. Kroto relates to repeating what was taught in the application, nothing more.

The Board also cited an interference case Haulton v. DeWindt, 254 F2d 141, 142, 117 USPQ 278, 279 (CCPA 1958). However, the Appellants respectfully submit that this case is not relevant since Dr. Kroto has admitted that the present inventors had found a process for making macroscopic amounts of fullerenes before he did. See Paragraph 24 of the Declaration of Kroto, dated November 16, 1999. Moreover, there is no question that the experiments referred to in all of his Declarations occurred after the effective filing date of the instant application.

As Kroto testified in his Declaration, Kroto repeated the process described in the instant application and showed that the process was, inter alia, enabling to make macroscopic amounts. As testified by Kroto, he was a contemporary of Huffman and Kratschmer, and was aware of and was personally involved in the search of C_{60} and other fullerenes. See Paragraph 2 of Supplemental Kroto Declaration dated November 16, 1999. Thus, he was familiar with the technology available as of September 1990. Moreover, as testified, he repeated the process described in the underlying application and he obtained fullerenes, e.g., C_{60} in macroscopic amounts. See Paragraph 18 of Supplemental Kroto Declaration, dated November 16, 1999.

> 18. Moreover, by following the procedures described in the above-identified application, and in accordance with the procedure outlined in Paragraph 17 herein, we have isolated fullerenes in macroscopic amounts. (Emphasis added)

It is irrelevant as to when the experiments were performed since he repeated the process described in the application. By obtaining macroscopic amounts of fullerenes, by repeating the experiments disclosed in the present application there can be no question that the application is enabling for one of ordinary skill in the art to make macroscopic amounts of C_{60} and/or C_{70}.

The Board's attention is also respectfully directed to the Declaration of Raouf O. Loutfy, attached hereto, especially Paragraphs 15-17 thereof. In his Declaration, Dr. Loutfy testifies that by following the procedure of the process discovered by the appellants described in the instant specification, macroscopic amounts of fullerenes, e.g., C_{60} were prepared.

> 17. I repeated exactly the Huffman et al. process according to the teaching described in the subject application including example 1 using ¼ inch in diameter graphite rod, at 100 torr Helium, using 100 ampere dc current. This graphite vaporized, and the vapor was condensed on a water cooled surface. The vaporization was performed for 50 minutes using about 17 cm length of the graphite rod and produced 12 gram of soot. The fullerenes were recovered using toluene(sic) and the amount of fullerene was determined. The yield of fullerene was about 8 to 10%. Accordingly, the total recoverable fullerenes was over 1.2 grams with over 900 mg of C_{60} and over 200 mg of C_{70} and the remaining other fullerenes.
>
> According to the teaching in the subject application where they vaporized a ¼" graphite rod with 1 cm length, the inventors (sic) must have produced at least about 600 mg of soot that contains admixture of at least 63 mg of fullerenes that contain at least about 50 mg of C_{60} and at least about 10 mg of C_{70}. A 600-mg quantity of soot certainly can be seen by the naked eye, as also indicated by the inventors (sic) that "heavy block coating on collecting substrates and/or on the walls of the chamber which can be easily scraped off for the recovery step." Also, the 60 mg of fullerene certainly can be seen

by the naked eye and is measurable, in today modern laboratory facility amount as low as 0.1 mg can be measured, and can be seen by the naked eye.

The same conclusion can be reached by simply calculating the mass of the rod vaporized in Kratschmer et al. subject application, including example 1, which is easily determined from the diameter of the graphite rod they used (1/4"), the length (1 cm), and typical density of the type of graphite used for graphite vaporization (2.0 g/cc). This calculation estimates that about 633 mg of soot containing fullerenes was produced by Kratschmer et al., which is certainly macroscopic and in agreement with the above-presented experimental data.

Moreover, if a longer graphite rod were used, the amount of C_{60}, C_{70} and other fullerenes produced would even be greater, as shown herein above.

These amounts are clearly macroscopic amounts. The fact that Drs. Kroto and Loutfy could make C_{60}, in macroscopic amounts by following the teachings of the application without an undue amount of experimentation is unequivocal evidence that the application contains an enabling description on how to make fullerenes in the amounts claimed.

Moreover, attention is directed to paragraph 15 of the Loutfy Declaration referred to in the previous section wherein he testifies that the application described on page 4 that the vaporization of graphite produces a high density of carbon vapor that facilitates the preparation of macroscopic amounts of fullerenes, e.g. C_{60} in accordance with the method described in the instant specification. The instant specification describes, in detail, the vaporization of carbon. For example, attention is directed to the specification on page 6, lines 22 et seq. which describes in detail a preferred embodiment of making a high density vapor of carbon, which after condensation and either extraction with non-polar solvents, e.g., benzene or by sublimation, produces fullerenes, e.g. C_{60} in macroscopic amounts. As indicated hereinabove, both Drs. Kroto and Loutfy have testified that the instant application provides sufficient detail for one of ordinary skill in the art to make macroscopic amounts of fullerenes, e.g. C_{60} and have so shown by repeating the process described in the instant specification.

The United States Patent and Trademark Office has the burden of proof on this issue, just as with the issue of descriptive support. It has presented no evidence that the application is not enabling for making macroscopic amounts of fullerenes, e.g., C_{60}. It has presented no evidence that refutes the testimony of Dr. Kroto. Further the testimony of Dr. Loutfy corroborates the Kroto testimony. Thus, it is respectfully submitted that the United States Patent and Trademark Office has not met its burden.

Therefore, since the specification provides a detailed description of the steps of the claimed process and since by following its teachings, one produces fullerenes in macroscopic amounts without undue experimentation as testified by Drs. Kroto and Dr. Loutfy, it necessarily follows that the process in the specification is enabling for the production of C_{60} in macroscopic amounts.

Therefore, for the reasons provided, it is respectfully requested that the Board reverse the rejection of Claims 45-49, 51-82, 96, 203 and 232 under 35 U.S.C. §112, first paragraph, for allegedly being non-enabling.

IV. MISCELLANEOUS

Appellants request clarification of the status of claims 45-49, 51-84, 96, 181 and 203-248 with respect to the rejection under 35 U.S.C. §112, second paragraph to verify that there was a final determination with respect to all of the claims. The decision indicates on page 4 that the rejection of these claims under 35 U.S.C. §112, second paragraph is <u>considered</u> withdrawn . It appears from the discussion on Page 4 of the Decision that these claims are no longer rejected under 35 U.S.C. §112, second paragraph. Thus, it is Appellants understanding that there are no outstanding rejections of claims 204-221, 223-231, and claims 233-247. However, clarification is respectfully requested.

V. CONCLUSIONS

The above arguments clearly establish the patentability of the claims rejected under 35 U.S.C. §112, first paragraph. It is respectfully requested that, in light of the above, the Board reconsider its Decision. Affirmance of the patentability and reversal of the Board's earlier Decision of these claims is respectfully solicited.

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